What is claimed is:

1. An implantable or insertable medical device comprising:

(a) a substrate;

(b) a hydrogel polymer coating at least a portion of the surface of the substrate, wherein said hydrogel polymer is adapted to render said medical device visible under magnetic resonance imaging upon insertion or implantation of said medical device into a patient.

2. The implantable or insertable medical device of claim 1, wherein said hydrogel polymer is adapted such that detectable species associated with said hydrogel polymer are differentiated from detectable species in the environment surrounding the device.

3. The implantable or insertable medical device of claim 1, wherein said hydrogel polymer is adapted by decreasing the relaxation time of said detectable species associated with said hydrogel polymer relative to the relaxation time of detectable species in the environment surrounding the device.

4. The implantable or insertable medical device of claim 3, wherein said detectable species associated with said hydrogel polymer comprise detectable protons.

5. The implantable or insertable medical device of claim 4, wherein water molecules associated with said hydrogel polymer comprise said detectable protons.

6. The implantable or insertable medical device of claim 4, wherein hydroxyl groups associated with said hydrogel polymer comprise said detectable protons.

7. The implantable or insertable medical device of claim 6, wherein a compound dispersed within said hydrogel polymer comprises said hydroxyl groups.

8. The implantable or insertable medical device of claim 7, wherein said compound dispersed with said hydrogel polymer comprises glycerin.

9. The implantable or insertable medical device of claim 1, wherein said hydrogel polymer is adapted by cross-linking said hydrogel polymer to a degree sufficient to render said medical device visible under magnetic resonance imaging upon insertion or implantation of said medical device into a patient.

10. The implantable or insertable medical device of claim 1, wherein said hydrogel polymer is adapted by incorporating paramagnetic ions in said hydrogel polymer.

11. The implantable or insertable medical device of claim 1, wherein hydrogel polymer is adapted by incorporating paramagnetic particles in said hydrogel polymer.

12. The implantable or insertable medical device or claim 11, wherein said paramagnetic particles comprise starch-coated iron oxide particles.

13. The implantable or insertable medical device of claim 10, wherein said hydrogel polymer is cross-linked.

14. The implantable or insertable medical device of claim 11, wherein said hydrogel polymer is cross-linked.

15. The implantable or insertable medical device of claim 10 wherein said hydrogel polymer comprises paramagnetic ion chelating groups.

16. The implantable or insertable medical device of claim 15, wherein said paramagnetic ion chelating groups are covalently bonded to the hydrogel polymer.

17. The implantable or insertable medical device of claim 10, wherein said hydrogel polymer comprises a paramagnetic ion chelation complex.

18. The implantable or insertable medical device of claim 17, wherein said paramagnetic ion chelation complex is covalently bonded to said hydrogel polymer.

19. The implantable or insertable medical device of claim 10, wherein said paramagnetic ions are selected from the group of chromium (III), manganese (II), iron (III), iron (II), cobalt (II), copper (II), nickel (II), praesodymium (III), neodymium (III), samarium (III), ytterbium (III), gadolinium (III), terbium (III), dysprosium (III), holmium (III) and erbium (III).

20. The implantable or insertable medical device of claim 19 wherein said paramagnetic ions comprise gadolinium (III).

21. The implantable or insertable medical device of claim 15, wherein said paramagnetic ion chelating groups comprise organic acid functional groups.

22. The implantable or insertable medical device of claim 15, wherein said paramagnetic ion chelating groups comprise carboxyl groups.

23. The implantable or insertable medical device of claim 15, wherein said paramagnetic ion chelating groups comprise aminopolycarboxylic acid groups.

24. The implantable or insertable medical device of claim 22, wherein said hydrogel polymer comprises substituted or unsubstituted acrylic acid monomer units.

25. The implantable or insertable medical device of claim 24, wherein said hydrogel polymer comprises polyacrylic acid.

26. The implantable or insertable medical device of claim 24, wherein said hydrogel polymer further comprises substituted or unsubstituted acrylamide monomer units.

27. The implantable or insertable medical device of claim 26, wherein said hydrogel polymer is a copolymer of acrylic acid and acrylamide.

28. The implantable or insertable medical device of claim 17, wherein said paramagnetic ion chelation complex is selected from the group consisting of diethylene triamine pentaacetic acid (DTPA), tetraazacyclododecane tetraacetic acid (DOTA), and tetraazacyclo tetradecane tetraacetic acid (TETA).

29. The implantable or insertable medical device of claim 28, wherein said paramagnetic chelation complex comprises diethylenetriamine pentaacetic acid (DTPA).

30. The implantable or insertable medical device of claim 1, wherein said hydrogel polymer is selected from the group consisting of polyacrylates; poly(acrylic acid); poly(methacrylic acid); polyacrylamides; poly(N-alkylacrylamides); polyalkylene oxides; poly(ethylene oxide); poly(propylene) oxide; poly(vinyl alcohol); polyvinyl aromatics; poly(vinylpyrrolidone); poly(ethyleneimine); polyethylene amine; polyacrylonitrile; polyvinyl sulfonic acid; polyamides; poly(L-lysine); hydrophilic polyurethanes; maleic anhydride polymers; proteins; collagen; cellulosic polymers; methyl cellulose; carboxymethyl cellulose; dextran; carboxymethyl dextran; modified dextran; alginates; alginic acid; pectinic acid; hyaluronic acid; chitin; pullulan; gelatin; gellan; xanthan; carboxymethyl starch; chondroitin sulfate; guar; starch; and copolymers, mixtures and derivatives thereof.

31. The implantable or insertable medical device of claim 1, wherein said hydrogel polymer is selected from the group consisting of poly(acrylic acid); polyacrylamide; poly(N-alkylacrylamide); copolymers of acrylic acid and acrylamide; poly(ethylene oxide); poly(propylene oxide); copolymers of ethylene oxide and propylene oxide; hyaluronic acid; and poly(L-lysine).

32. The implantable or insertable medical device of claim 31, wherein said hydrogel polymer comprises poly(acrylic acid).

33. The implantable or insertable medical device of claim 31, wherein said hydrogel polymer comprises a copolymer of acrylic acid and acrylamide.

34. The implantable or insertable medical device of claim 1, further comprising a lubricious coating layer disposed on said hydrogel polymer.

35. The implantable or insertable medical device of claim 1, wherein said medical device is selected from the group consisting of catheters, guide wires, balloons and stents.

36. The implantable or insertable medical device of claim 35, wherein said catheter is a neuro-interventional microcatheter.

37. The implantable or insertable medical device of claim 35, wherein the stent is selected from the group consisting of endovascular, biliary, tracheal, gastrointestinal, urethral, ureteral and esophageal stents.

38. The implantable or insertable medical device of claim 37, wherein the stent is a coronary stent.

39. The use of the implantable or insertable medical device of claim 1 in a medical procedure, wherein during or after insertion or implantation of said medical device in a patient, the position of the medical device is viewed under magnetic resonance imaging.

40. The use of the implantable or insertable medical device according to claim 39, wherein said hydrogel polymer is adapted by decreasing the relaxation time of detectable species associated with said hydrogel polymer relative to the relaxation time of detectable species in the environment surrounding the device.

41. The use of the implantable or insertable medical device according to claim 40, wherein said detectable species comprise protons in water molecules or hydroxyl groups associated with the hydrogel polymer.

42. The use of the implantable or insertable medical device according to claim 39, wherein said hydrogel polymer is adapted by cross-linking said hydrogel polymer to a

degree sufficient to render said medical device visible under magnetic resonance imaging upon insertion or implantation of said medical device into a patient.

43. The use of the implantable or insertable medical device according to claim 39, wherein said hydrogel polymer is adapted by incorporating a member selected from the group consisting of paramagnetic ions, paramagnetic particles and paramagnetic ion chelation complexes in said hydrogel polymer.

44. The use of the implantable or insertable medical device according to claim 43, wherein said paramagnetic ions comprise gadolinium(III), said paramagnetic particles comprise starch-coated iron oxide particles and said paramagnetic ion chelation complex comprises Gd-DTPA.

45. The use of the implantable or insertable medical device according to claim 43, wherein said hydrogel polymer is cross-linked.

46. The use of the implantable or insertable medical device according to claim 45, wherein said hydrogel polymer comprises paramagnetic ion chelating groups.

47. The use of the implantable or insertable medical device according to claim 46, wherein said paramagnetic ion chelating groups are selected from the group consisting of carboxyl groups and polyaminopolycarboxylic acid groups covalently bonded to the hydrogel polymer.

48. The use of the implantable or insertable medical device according to claim 45, wherein said hydrogel polymer comprises polyacrylic acid or a copolymer of acrylic acid and acrylamide.

49. The use of a hydrogel polymer for coating at least a portion of the surface of a medical device, wherein said hydrogel polymer is adapted to render said medical device coated with said hydrogel polymer visible under magnetic resonance imaging during or after insertion or implantation of said medical device in a patient.

50. The use of a hydrogel polymer according to claim 49, wherein said hydrogel polymer is adapted by decreasing the relaxation time of detectable species associated with said hydrogel polymer relative to the relaxation time of detectable species in the environment surrounding the device.

51. The use of a hydrogel polymer according to claim 50, wherein said detectable species comprise protons in water molecules or hydroxyl groups associated with the hydrogel polymer.

52. The use of a hydrogel polymer according to claim 49, wherein said hydrogel polymer is adapted by cross-linking said hydrogel polymer to a degree sufficient to render said medical device visible under magnetic resonance imaging upon insertion or implantation of said medical device into a patient.

53. The use of a hydrogel polymer according to claim 49, wherein said hydrogel polymer is adapted by incorporating a member selected from the group consisting of paramagnetic ions, paramagnetic particles and paramagnetic ion chelation complexes in said hydrogel polymer.

54. The use of a hydrogel polymer according to claim 53, wherein said paramagnetic ions comprise gadolinium(III), said paramagnetic particles comprise starch-coated iron oxide particles and said paramagnetic ion chelation complex comprises Gd-DTPA.

55. The use of a hydrogel polymer according to claim 53, wherein said hydrogel polymer is cross-linked.

56. The use of a hydrogel polymer according to claim 55, wherein said hydrogel polymer comprises paramagnetic ion chelating groups.

57. The use of a hydrogel polymer according to claim 56, wherein said paramagnetic ion chelating groups are selected from the group consisting of carboxyl groups and polyaminopolycarboxylic acid groups covalently bonded to the hydrogel polymer.

58. The use of a hydrogel polymer according to claim 55, wherein said hydrogel polymer comprises polyacrylic acid or a copolymer of acrylic acid and acrylamide.

59. A hydrogel polymer adapted to render a medical device coated with said hydrogel polymer visible under magnetic resonance imaging during or after insertion of said medical device in the patient.

60. The hydrogel polymer of claim 59, wherein said hydrogel polymer is adapted by decreasing the relaxation time of detectable species associated with said hydrogel polymer relative to the relaxation time of detectable species in the environment surrounding the device.

61. The hydrogel polymer of claim 60, wherein said detectable species comprise protons in water molecules or hydroxyl groups associated with the hydrogel polymer.

62. The hydrogel polymer of claim 59, wherein said hydrogel polymer is adapted by cross-linking said hydrogel polymer to a degree sufficient to render said medical device visible under magnetic resonance imaging upon insertion or implantation of said medical device into a patient.

63. The hydrogel polymer of claim 59, wherein said hydrogel polymer is adapted by incorporating a member selected from the group consisting of paramagnetic ions, paramagnetic particles and paramagnetic ion chelation complexes in said hydrogel polymer.

64. The hydrogel polymer of claim 63, wherein said paramagnetic ions comprise gadolinium(III), said paramagnetic particles comprise starch-coated iron oxide particles and said paramagnetic ion chelation complex comprises Gd-DTPA.

65. The hydrogel polymer of claim 63, wherein said hydrogel polymer is cross-linked.

66. The hydrogel polymer of claim 65, wherein said hydrogel polymer comprises paramagnetic ion chelating groups.

67. The hydrogel polymer of claim 66, wherein said paramagnetic ion chelating groups are selected from the group consisting of carboxyl groups and polyaminopolycarboxylic acid groups covalently bonded to the hydrogel polymer.

68. The hydrogel polymer of claim 65, wherein said hydrogel polymer comprises polyacrylic acid or a copolymer of acrylic acid and acrylamide.